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# Appendix F Special Interest Areas

## Introduction

This report describes the potential Special Interest Areas (SIAs) considered in development of the alternatives in the EIS. SIA descriptions are presented by respective units for the Dakota Prairie Grasslands, Thunder Basin National Grassland (Medicine Bow/Routt National Forest), and Nebraska National Forest. This report is organized in alphabetical order.

## Inventory Process

Units and resource specialists were asked to identify potential SIAs from their knowledge of the resource. Potential SIAs could be any area having special scenic, historical, geological, botanical, zoological and/or paleontological characteristics. Between 1993 and 1996, Forest Service personnel on the Little Missouri National Grassland worked in partnership with the North Dakota Natural Heritage Program to develop awareness and recognition for candidate SIAs. On the Thunder Basin National Grassland and Nebraska National Forest, additional potential SIAs were developed from potential Research Natural Areas (RNAs) reviewed by The Nature Conservancy in 1996 and deemed unsuitable for RNA classification.

## Dakota Prairie Grasslands

### Grand River/Cedar River National Grasslands

#### *Aspen Stand SIA*

This 10-acre site lies within the Humphrey Draw Wildlife Area and is the only aspen stand known to occur on the Grand River/Cedar River National Grasslands. The stand is located near the head of a green ash wooded draw and, while small, is healthy and is reproducing. The largest trees are between eight and ten inches in diameter at breast height.

#### *The Bog SIA*

This 30-acre site consists of several bog-like patches within a grassland matrix. Plants from the *Carex* genus dominate the patches. Wet, mucky areas are interspersed with dry ground, providing a patchwork of vegetation. The wet areas feature bentonite-like suspended clays that have a paste-like texture. Livestock have fallen in and have disappeared; the depth of the bog has not been determined.

### ***Grand River Sand Dunes SIA***

Two areas make up this 70-acre potential SIA. The sites contain unique sandy blowouts, areas where a complete grass vegetative cover is absent and wind action creates a constantly shifting landscape. The west blowout is the larger of the two and supports a prairie sandreed/Indian ricegrass community.

### ***White Butte SIA***

This 130-acre site is of archaeological interest and of potential significance to the Lakota tribes. Two potential sensitive species as listed by the U.S. Forest Service are found in the area: *Astragalius* and *Oxytropis* spp. Geologic interest is high in the area given its landform and the petrified rock found in the area. White Butte is the highest point in the area and provides excellent vista views of the surrounding plains.

## **Little Missouri National Grassland (Medora Ranger District)**

### ***Battle of the Badlands SIA***

This 1,220-acre site has high value for its archeological, paleontological, wildlife, and geologic resources. The SIA includes a portion of General Sully's 1864 Battle of Badlands with the Sioux Indians, portions of the 1864 and 1876 military trails, and the 1876 Snow Camp of the Custer Expedition to the Little Bighorn battle. It is contiguous with the Square Buttes SIA. The area also contains several uncommon plant species.

### ***Black Butte SIA***

This 720-acre site may be one of the Earthnaming Buttes of the Hidatsa and is in the general vicinity of other heritage sites. The butte top contains eagle-catching pits and offers a scenic view of the badlands, rolling prairie, and adjacent buttes. Several uncommon or sensitive plant species (as listed by the Forest Service and the State of North Dakota) are found in the area, including blue lips, paper birch, mountain brome, squaw currant, and Douglas knotweed. The area also contains several nesting sites for raptors.

### ***Black Cottonwood SIA***

This 290-acre site contains the only known population of black cottonwood on the Little Missouri National Grassland. The site contains other unique plant species, including several listed as species of concern by the State of North Dakota. The area provides important habitat for Neotropical migratory birds and raptors. Several archeological sites are also found in the area.

### ***Bullion Creek Type Formation SIA***

This 550-acre site is the type section of the Bullion Creek Geologic Formation Type. As a type section, this site would be the standard of this formation for geological research and analysis. This formation contains large numbers of fossils of considerable scientific value.

### ***Burning Coal Vein/Columnar Junipers SIA***

This 210-acre site contains an inactive burning coal vein seam, considered to be a significant geologic feature. The junipers in the area have grown in an atypical "columnar" shape, which some attribute to gaseous vapors escaping from the earth when the burning coal vein was active. Several other uncommon plant species are found in the area. The only known North Dakota population of *Belfragi's chlorochroan* bug occurs at this site. This bug is a U.S. Fish and Wildlife Service candidate for the federal Threatened and Endangered Species list. This site also contains fossilized leaves and shells.

### ***Cannonball/Slope Contact SIA***

This 60-acre site contains geologic outcropping features from the Paleocene epoch Fort Union Group. The site uniquely illustrates the westernmost extension of marine Paleocene seas. The Cannonball Formation occurs at this site as tongues within the surrounding Slope Formation, the only known location in the Williston Basin where this relationship occurs.

### ***Custer Trail/Davis Creek SIA***

This 700-acre site recognizes the historic significance of General Alfred Terry and Lt. Colonel George Custer's 1876 expedition across the badlands to the Battle of the Little Bighorn. It includes segments of trail ruts, the May 28, 1876 campsite, and Initial Rock, which is inscribed with the names of two Seventh Cavalry soldiers. The site also contains a golden eagle nest site, pronghorn antelope winter range, and the only known population of the sand lily on the Little Missouri National Grassland.

### ***Ice Caves SIA***

This 240-acre site is one of only two known natural cave systems in North Dakota. A number of uncommon or unusual plant communities are found in the jumble of rocks associated with the caves. Sandstone caprock and large blocks of sandstone have broken loose from the ridge cap and have tumbled down the steep slope to create this unusual geological site. This site was historically used by settlers to store perishable foods. A prairie falcon and golden eagle nests have been found at the site. Excellent scenery, vistas, and botanical features make this a popular day-trip destination for visitors.

### ***Pretty Butte SIA***

This 320-acre site features listed Forest Service sensitive species and rare species as identified by the State of North Dakota, including blue lips. The site may also provide habitat for sensitive bat populations. The top of the butte provides scenic vista points to view the surrounding badlands and rolling plains. The SIA also features numerous prehistoric sites and may be one of the Baby Hills or Baby Buttes held sacred by the Hidatsa, Mandan, and Sioux tribes.

### ***Riparian Pools SIA***

This 50-acre site features a high-quality riparian zone with unusual plant communities, high botanical diversity, waterfowl nesting sites, and occurrences of the rare Baird's sparrow, listed as a Forest Service sensitive species. Several prehistoric sites have also been discovered on the site.

### ***Roundtop Butte SIA***

This 10-acre site features a crumbling sandstone formation which provides habitat conditions for several uncommon plant species, including listed Forest Service sensitive plants, as well as plants of concern as identified by the State of North Dakota. Such species include Dakota buckwheat and nodding buckwheat.

### ***Slope Type Formation SIA***

This 190-acre site is the type section for the Slope Geologic Formation. As a type section, this site would be the standard of this formation for geologic research and analysis.

### ***Square Buttes SIA***

This 1,600-acre SIA contains the 1864 Sully expedition "waterhole" campsite and a major battle site from the early stages of the Battle of the Badlands with the Sioux Indians. It also includes trail ruts from this expedition and the later Custer 1876 military expedition. It is contiguous with the Battle of the Badlands SIA. Several plant species uncommon to the Little Missouri National Grassland are found in this SIA. In addition, numerous raptor nests occur on the steep cliff faces of the butte.

## **Sheyenne National Grassland**

No potential Special Interest Areas were identified on the Sheyenne National Grassland.

## **Medicine Bow/Routt National Forest**

### **Thunder Basin National Grassland**

#### ***Alkali Divide SIA***

This 5,140-acre site features a high concentration of fossil remains from the Late Cretaceous Period ending about 65 million years ago. The site is within the Lance Formation, which is composed of 2,600 feet of dull gray, sandy shales alternating with lenticular, light-colored sandstones, and thin lignite beds. The Lance Formation has a very good potential to produce a large variety of fossils of excellent research value. This is the most productive fossil-bearing site on the Thunder Basin National Grassland.

#### ***Buffalo Divide SIA***

This 490-acre site features a series of prehistoric camps that run along a grassy ridge the separates the watersheds of the Belle Fourche and Cheyenne Rivers. Excavations conducted in the early 1990s indicated a protohistoric (period of time after initial European contact but before good written record) occupation as a hunting camp during the summer and fall. The good preservation of the site and the presence of many associated artifacts make this site a good candidate for further research. It is eligible for the National Register of Historic Places.

### ***Cellars SIA***

This 960-acre site is characterized by a series of prehistoric camps atop a continuous ridge overlooking the surrounding terrain. This complex of more than 120 stone circles was a major prehistoric campsite for early American Indians. Management emphasizes protecting the archeological features and increasing our understanding of the site by working in concert with contemporary American Indian tribes.

### ***Cheyenne River Zoological SIA***

This 5,980-acre site, previously named East Pasture, provides a prairie dog complex of approximately 3,000 acres, occupied mountain plover habitat, and potential black-footed ferret habitat. About six and three-quarter miles of the Cheyenne River winds through the area, offering habitat for fish, beaver, and raptors, which nest in the area. Also found along this river corridor are potential habitats for the Ute ladies-tresses and bald eagle winter roost sites.

### ***Cow Creek Historic Rangeland SIA***

This 14,170-acre site features naturally appearing rangelands that function in a self-sustaining ecological manner. The area provides a glimpse into what rangelands were like in the pre homestead era, prior to the 1880s. Native vegetation and ecological processes function and are basically unaffected by man, except for the introduction of domestic livestock and the basic facilities needed to maintain them.

### ***Lance Geologic SIA***

This 40 acre site is characterized by a wash approximately 10 acres in size containing numerous mushroom like geologic features, three-dimensional views of ancient sedimentary structures. Additionally, the area offers opportunity for study of certain unique geologic features, ancient depositional environments, and paleontologic and paleoecologic resources.

## **Nebraska National Forest Units**

### **Bessey Unit (Including the Samuel R. McKelvie National Forest)**

#### ***Bessey/McKelvie Tree Plantations SIA***

The 21,710 acres of these accumulated sites are scattered between the Bessey unit and Samuel R. McKelvie unit, both of which are located in the Sandhills of Nebraska. These areas contain tree plantations of ponderosa pine, jack pine, and Eastern red cedar. These plantations were established between the early 1900s and 1946. Some of these stands were planted by Civilian Conservation Corps crews during the Great Depression as demonstration projects for area residents. These plantations form the largest hand-planted forests in North America.

#### ***Mallard Exclosure***

This 680-acre exclosure site features a Sandhills wetland complex with green ash, cottonwood, and several willow species. Management emphasis is on protecting this unique botanical community.

## **Buffalo Gap National Grassland (Fall River Ranger District)**

### ***Edgemont Shark Locality SIA***

This 940-acre site features a former picnic area that is continually impacted by fossil collectors. An enormous number of shark and fish teeth, as well as ammonites, are found at the site. The shark teeth are so numerous that they are exposed as shark-tooth rock conglomerate. A plesiosaur and early mosasaurs have been found at the site. Rock in the area is identified as Late Cretaceous Carlile Shale.

### ***Indian Creek SIA***

Most of this potential SIA is located on the Wall Ranger District of the Buffalo Gap National Grassland. Only 840 acres are located on the Fall River Ranger District. Please refer to the description of this SIA in the narrative for the Wall Ranger District.

### ***Marietta South SIA***

This 260-acre paleontologic site features the Belle Fourche, Greenhorn Limestone, and Mowry Shale Units of the Late Cretaceous Marine Sequence. This site has produced a wide variety of vertebrates, including plesiosaurs and pterosaurs, both rare in the fossil record for South Dakota. Other fossils located at this site include fishes, sharks, turtles, and invertebrates, such as ammonites and clams.

### ***One-Mile Hill SIA***

This 630-acre site features Late Cretaceous Belle Fourche Shale and Greenhorn Limestone. The site contains a wide variety of fossils, including fish, turtles, sharks, ammonites, and clams. It is fairly scenic, with a good deal of big sagebrush and highly erodible soils and exposed shales clearly visible.

### ***Red Shirt Scenic***

In the draft plan and analysis Red Shirt was considered for SIA designation. In FEIS Alternative 3, Red Shirt is Recommended for Wilderness, MA 1.2. This 33,470-acre site includes the scenic White River Badlands and the braided Cheyenne River. It features color-banded buttes rising to flat plateaus. The area provides nonmotorized, backcountry, recreational experiences in a primitive, undeveloped setting.

### ***Swift Fox***

In the draft plan and analysis Swift Fox was considered for SIA designation. In FEIS Alternative 3, Swift Fox is to be managed as Special Plant and Wildlife Habitat, MA 3.64. This 10,070-acre site provides suitable habitat for the swift fox. This small fox is federally listed as "warranted but precluded" on the threatened and endangered species list. Concern for the viability of the swift fox has also been expressed by the State of South Dakota. A stable population of swift fox has been observed in the rolling grasslands of this potential SIA.

### ***Wallace Ranch Localities SIA***

This 420-acre paleontological site is representative of the Late Cretaceous Pierre Shale Marine Unit and has produced such fossils as fish, sharks, pterosaurs, mosasaurs, turtles, baculites, and other ammonites. A shark specimen found on the site is scientifically significant because it displays preserved cranial elements that in life were of cartilage material, not bone.

### **Buffalo Gap National Grassland (Wall Ranger District)**

#### ***Indian Creek***

In the draft plan and analysis Indian Creek was considered for SIA designation. In FEIS Alternative 3, Indian Creek is Recommended for Wilderness, MA 1.2. This 27,600-acre site offers the largest block of scenic, Cheyenne River badlands breaks and the largest roadless area on the Buffalo Gap National Grassland. The rugged, remote terrain contains an abundance of scientifically significant fossil resources.

#### ***Kadoka Lake***

In the draft plan and analysis Kadoka Lake was considered for SIA designation. In FEIS Alternative 3, Kadoka Lake is to be managed as Special Plant and Wildlife Habitat, MA 3.64. This 1,210-acre site is the largest wetland area on any national grassland in the Northern Great Plains. The area features Ducks Unlimited projects, with an emphasis on waterfowl habitat.

#### ***Scenic Type Section***

In the draft plan and analysis Scenic Type Section was considered for SIA designation. In FEIS Alternative 3, Scenic Type Section will be managed as part of Black-Footed Ferret Reintroduction Habitat, MA 1.2. This 350-acre site is significant to paleontologists and geologists because it is the type section for the Scenic Member of the Brule Formation, White River Group, Oligocene Epoch, Tertiary Period. As a type section, this site would be the standard of this formation for research and analysis.

#### ***Weta Dam***

In the draft plan and analysis Weta Dam was considered for SIA designation. In FEIS Alternative 3, Weta Dam is to be managed as Special Plant and Wildlife Habitat, MA 3.64. This 570-acre site provides significant habitat for the trumpeter swan. The site features Ducks Unlimited projects emphasizing waterfowl habitat.



## **Pine Ridge Unit (Including the Oglala National Grassland)**

### ***Bur Oak Enclosure SIA***

This three-acre site contains a large stand of bur oak that is thought to be native to the area. It is the only known population of bur oak on the Pine Ridge unit.

### ***Hudson Meng Bison Bonebed SIA***

This 40-acre site contains 600 to 1,000 skeletons of an extinct, prehistoric bison species. The skeletons are approximately 10,000 years old. The site is undergoing intense scientific study, and a modern, interpretive visitor center has been built alongside a climate-controlled bonebed enclosure.

### ***Mountain Mahogany Stand SIA***

This 90-acre site features a mature stand of mountain mahogany, which extends onto adjacent private land. The stand is thought to have originated after a fire in the 1950s reduced competition from ponderosa pine.

### ***Quaking Aspen Stand SIA***

This eight-acre site, located on the Oglala National Grassland, features a stand of quaking aspen and three beaver ponds. The site provides for the only known quaking aspen on the Oglala National Grassland. Smaller aspen stands are found along the Pine Ridge of the Nebraska National Forest.

### ***Toadstool Park SIA***

This 2,000-acre site, located on the Oglala National Grassland, features badlands terrain of the White River Group. The site contains the longest known fossil animal trackway in the world from the Oligocene epoch. The site has produced mammalian fossils representing the rise of modern mammalian families in North America. A developed campground and replica sod shanty are located nearby.

### ***Warbonnet/Yellowhand SIA***

This 30-acre site features the location of a skirmish between the Fifth Cavalry, led by Colonel Wesley Merritt, and a band of Cheyenne Indians, led by Chief Yellowhand. The band was attempting to join the northern camps during the summer of the great Sioux War in 1876. During this skirmish, Buffalo Bill Cody is reputed to have killed Chief Yellowhand, the only casualty from the battle.

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## Demand Assessment

Assessing the demand for SIAs is accomplished mainly in two ways: 1) recognition of significant public interest and use of an area, often for recreation or aesthetic purposes, and 2) recognition of scientific or historic values associated with an area; for instance, sites with rare plant and animal occurrences or with unusually high historic or paleontological values.

Dozens of sites have been analyzed for their suitability as SIAs. During this analysis and inventory process, a number of sites have been advanced as potentially appropriate SIA sites.

To illustrate demand rationale, a few examples of potential SIA sites follow:

**Bessey/McKelvie Tree Plantations:** These sites are truly tree plantation areas, the first plantings done in the early 1900s on Sandhills grassland areas. Located on the Bessey Ranger District of the Nebraska National Forest, these plantations have historic significance in that they represent a grand experiment in transforming grasslands into forested lands. Ponderosa pine, jack pine, and Eastern red cedar are the more commonly found tree species in the area.

**Edgemont Shark Locality:** A paleontological site located on the Fall River Ranger District of the Buffalo Gap National Grassland, this site is well known for the numerous shark and fish teeth fossils occurring in the area. Other discoveries include a plesiosaur and early mosasaurs.

**Hudson-Meng Bison Bonebed:** This site, located on the Pine Ridge Ranger District of the Nebraska National Forest (Oglala National Grassland), contains between 600 and 1,000 bison skeletons dating back about 10,000 years. The bonebed site has been placed on the National Register of Historic Places. The site houses a bonebed enclosure and a visitor information center. This site is becoming an increasingly popular tourist destination.

**Ice Caves:** Located on the Medora Ranger District of the Little Missouri National Grassland, the Ice Caves site is one of very few caves found in North Dakota. Many unusual plant communities are found in the jumble of rocks associated with the cave site. The Ice Caves site is a popular day-trip destination and hiking area.

**Weta Dam:** Weta Dam is located on the Wall Ranger District of the Buffalo Gap National Grassland. The site provides primary habitat for the trumpeter swan, a rare bird once hunted to the brink of extinction. The Weta Dam site is a Ducks Unlimited project area, with an emphasis on waterfowl production and habitat.